



Physiological overreactivity and low end-tidal CO₂ as a transdiagnostic stress response: Comparing between and within patients with stress-related bodily complaints versus controls.



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Indra Ramakers

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Introduction



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Background

About 40-49% of primary health care patients report somatic symptoms that cannot be explained by well-known organic disease and are often assumed to be stress-related.

- Stress-related disorders:
 - Overstrain
 - Burnout
 - Functional somatic syndromes (FSS) (e.g. fibromyalgie, chronic fatigue syndrome)

Background

Assessing PetCO₂ at rest and during 2 respiratory challenges in

Stress-related disorders:

- Overstrain
- Burnout
- FSS

Control groups:

- Panic disorder (PD)
- Healthy controls (HC)



Hypotheses

- All patients experience significantly lower PetCO₂ at rest than healthy controls.
- All patients experience lower PetCO₂ in response to the respiratory challenges than healthy controls.
- All patients have a less steep recovery slope after the respiratory challenges than healthy controls.
- Explorative:
 - Perfectionism, exposure to trauma and experiential avoidance

Methods



Methods

- Baseline phase (300s)
- Mild respiratory challenge (sighing 5 times)
- Recovery phase (300s)
- Hyperventilation provocation task (30s)
- Recovery phase (300s)

Questionnaires:

- Acceptance and Action Questionnaire (AAQ-II; Bond et al., 2011)
- Frost Multidimensional Perfectionism Scale (FMPS; Frost et al., 1990)
- Traumatic Experiences Checklist (TEC; Nijenhuis et al., 2002)

Results

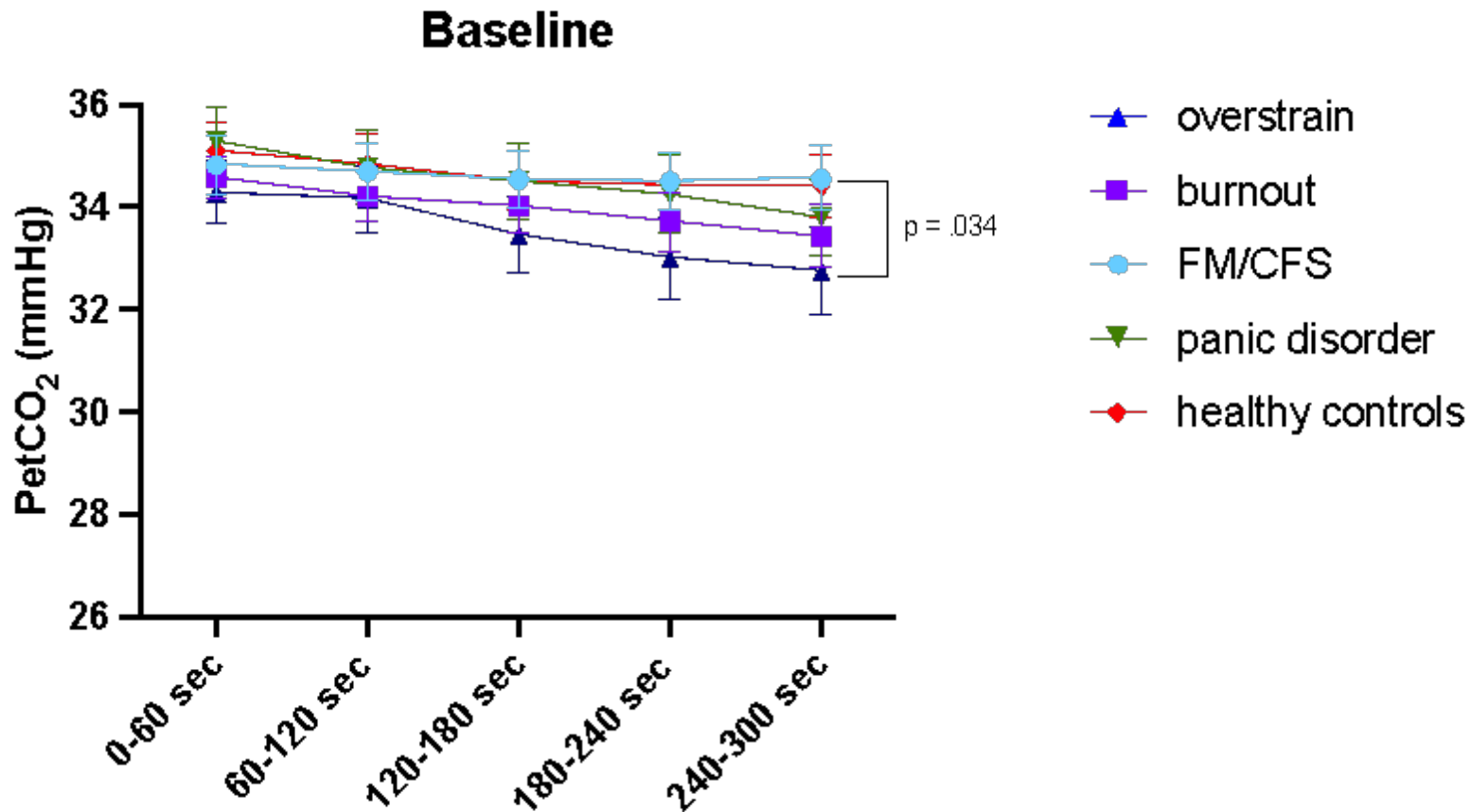


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Evolution of PetCO₂ during baseline phase.

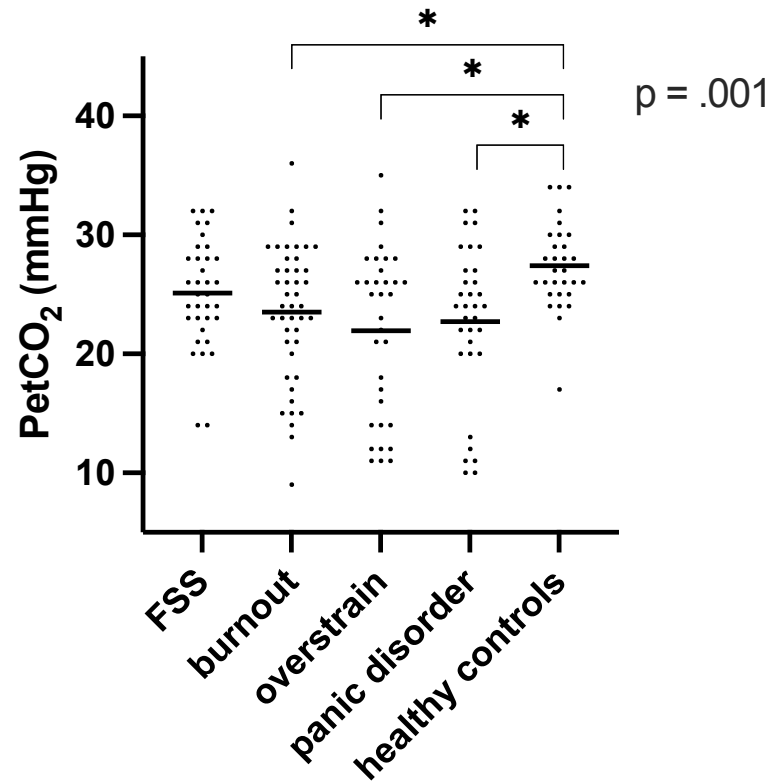
- A steeper decline of PetCO₂ in overstrain patients compared to FSS patients ($p = .034$).



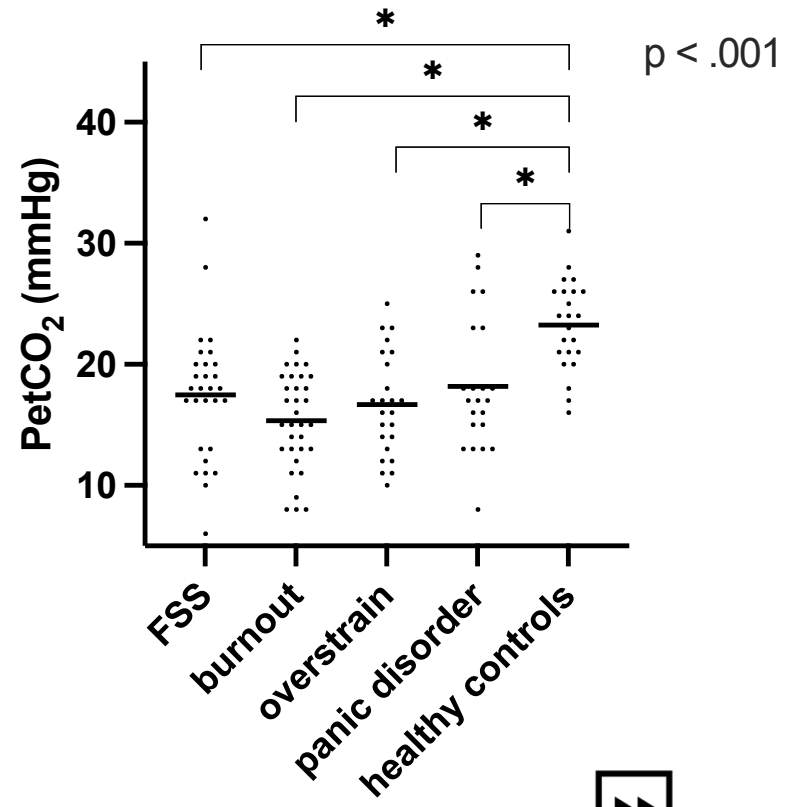
Differences in lowest PetCO₂ reached during respiratory challenges.

Between group differences

Mild respiratory challenge



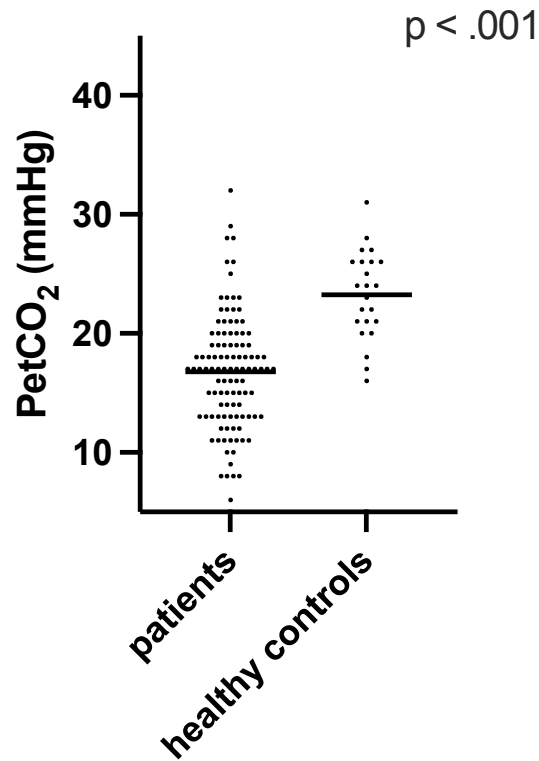
Hyperventilation provocation task



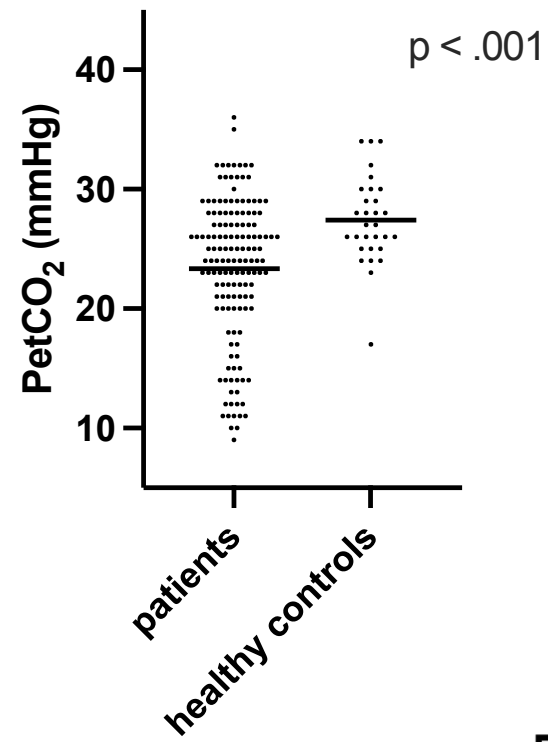
Differences in lowest PetCO₂ reached during respiratory challenges.

Specific contrasts: Patients versus HC

Mild respiratory challenge



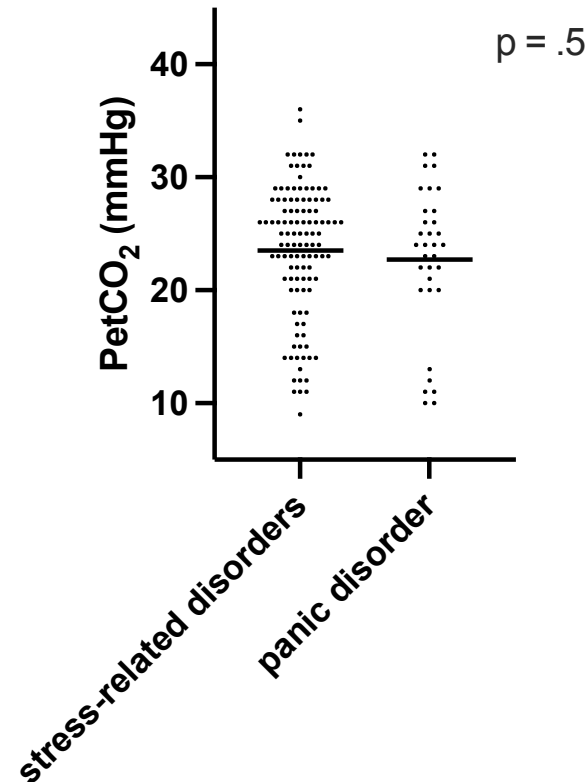
Hyperventilation provocation task



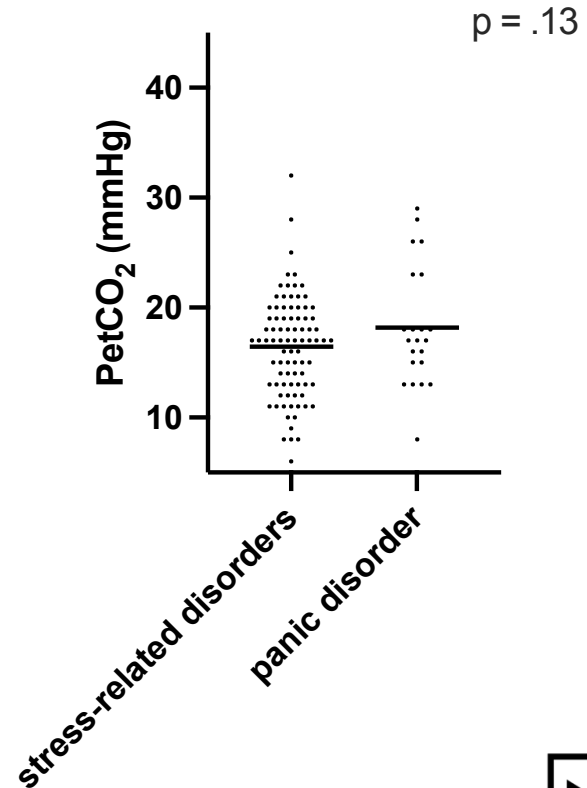
Differences in lowest PetCO₂ reached during respiratory challenges.

Specific contrasts: PD versus stress-related disorders

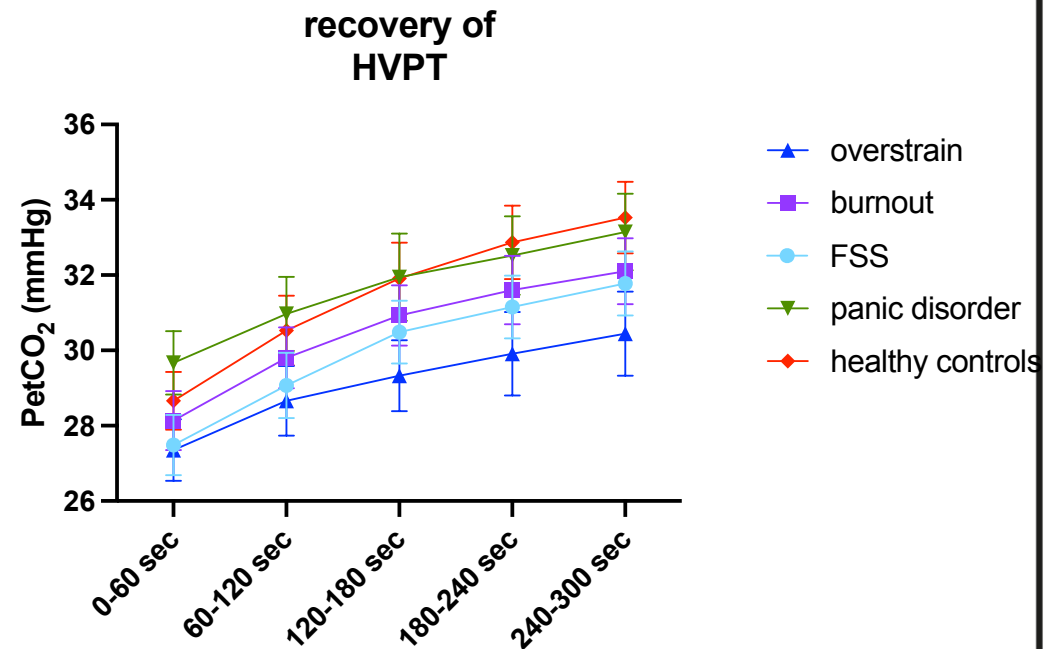
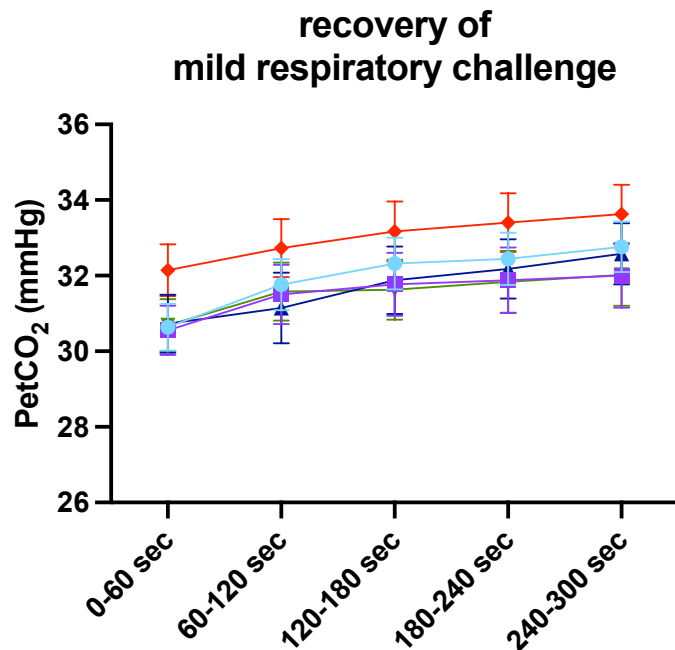
Mild respiratory challenge



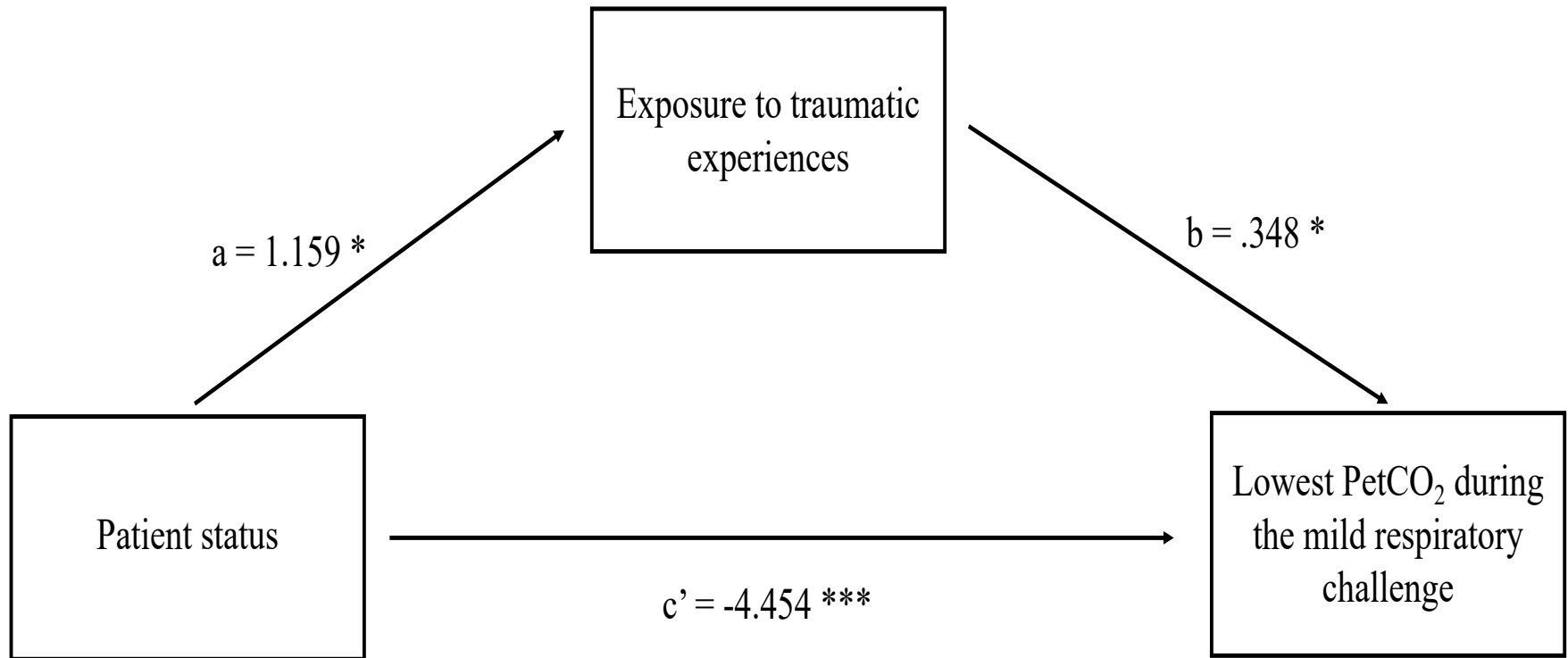
Hyperventilation provocation task



Evolution of PetCO₂ during the recovery of a mild respiratory challenge and the hyperventilation provocation task.



Mediation analyses



Discussion



Discussion

- Patients with stress-related disorders and panic disorder reached significantly lower PetCO₂ during respiratory challenges compared to HC.
- The former effect was found to be partially mediated by exposure to traumatic experiences.
- No differences in PetCO₂ between stress-related disorders and PD.
- No significant differences were observed in slopes of the recovery from the respiratory challenges between stress-related disorders, PD and HC.
- Although we found that all stress-related disorders were characterized by physiological overreactivity, a more passive action tendency was observed in the most chronic and severe stress-related disorders (FSS) compared to the more acute ones (overstrain).



Conclusion

- Physiological overreactivity as a transdiagnostic mechanism for both panic- and stress-related disorders.
- This overreactivity is also found to be partially mediated by exposure to traumatic experiences.

Thanks for your attention!



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